Claims:

1. A storage subsystem (hereinafter, referred to as the storage subsystem in question) in a computer system in which a plurality of storage subsystems are sequentially concatenated to a host computer and remote copy is performed between said plurality of storage subsystems, wherein:

said storage subsystem in question comprises:

an interface which receives status information acquisition command and which sends status information from and to a storage subsystem (hereinafter, referred to as an upstream storage subsystem) that is located on a nearer side of the storage subsystem in question seen from the host computer and connected to the storage subsystem in question;

an outgoing status information storage unit which stores said status information (hereinafter, referred to outgoing status information) to be sent to said upstream storage subsystem;

a target storage subsystem judgment unit which judges whether a target storage subsystem (meaning a storage subsystem from which said status information is to be acquired) stored in the status information acquisition command received through said interface is the storage subsystem in question;

a command downstream sending unit which sends said status information acquisition command to a storage subsystem (hereinafter, referred to as a downstream storage subsystem) that is located on a farther side of the storage subsystem in question seen from the host computer and connected to the storage

subsystem in question, when said target storage subsystem judgment unit judges that the storage subsystem in question is not said target storage subsystem from which said status information is to be acquired;

a self status information acquisition unit which acquires the status information of the storage subsystem in question and which stores the acquired status information as said outgoing status information into said outgoing status information storage unit, when said target storage subsystem judgment unit judges that the storage subsystem in question is said target storage subsystem from which said status information is to be acquired; and

a downstream status information acquisition unit which receives the status information from said downstream storage subsystem and which stores the received status information as said outgoing status information into said outgoing status information storage unit;

and

after said self status information acquisition unit or said downstream status information acquisition unit stores said outgoing status information into said outgoing status information storage unit, said interface sends said status information stored.

2. A storage subsystem according to Claim 1, further comprising:

a concatenation position judgment unit which judges a concatenation position of the storage subsystem in question based on information stored in said status information acquisition

command received from said upstream storage subsystem;

wherein:

when said concatenation position judgment unit judges that the storage subsystem in question is a storage subsystem (hereinafter, referred to as a direct-coupled storage subsystem) connected to said host computer, then, said interface sends the outgoing status information stored in said outgoing status information storage unit to said host computer.

3. A storage subsystem according to Claim 2, wherein:

when said target storage subsystem judgment unit judges that said target storage subsystem is all of said plurality of storage subsystems (including the storage subsystem in question) sequentially concatenated from said host computer, and said concatenation position judgment unit judges that the storage subsystem in question is not a storage subsystem (hereinafter, referred to as an end storage subsystem) concatenated at a farthest position seen from said host computer among said plurality of storage subsystems sequentially concatenated, then, said command downstream sending unit sends said status information acquisition command to the downstream storage subsystem connected to the storage subsystem in question;

said self status information acquisition unit adds the acquired status information of the storage subsystem in question to the status information that is received by said downstream status information acquisition unit from said downstream storage subsystem and stored in said outgoing status information storage unit, and then, said self status information acquisition unit stores

resultant status information as the outgoing status information into said outgoing status information storage unit; and

after said self status information acquisition unit stores said outgoing status information into said outgoing status information storage unit, said interface sends said status information.

4. A storage subsystem according to Claim 3, wherein:

when said target storage subsystem judgment unit judges that said target storage subsystem is all of said plurality of storage subsystems (including the storage subsystem in question) sequentially concatenated from said host computer, and said concatenation position judgment unit judges that the storage subsystem in question is not the end storage subsystem, then, said command downstream sending unit instructs said self status information acquisition unit to acquire the status information of the storage subsystem in question and to store the acquired status information as the outgoing status information into said outgoing status information storage unit.

5. A storage subsystem according to Claim 4, further comprising an acquired information judgment unit which judges whether status information whose acquisition is requested by the status information acquisition command received is newest status information; wherein:

when said acquired information judgment unit judges that the newest status information is not requested, said concatenation position judgment unit judges that the storage subsystem in

question is a direct-coupled storage subsystem, and said outgoing status information storage unit holds the outgoing status information, then, said interface sends the held status information to the host computer without awaiting that said self status information acquisition unit or said downstream status information acquisition unit stores outgoing status information into said outgoing status information storage unit.

6. A storage subsystem (hereinafter, referred to as the storage subsystem in question) in a computer system in which a plurality of storage subsystems are sequentially concatenated to a host computer and remote copy is performed between said plurality of storage subsystems, wherein:

said storage subsystem in question comprises:

an interface which receives status information acquisition command and which sends status information from and to a storage subsystem (hereinafter, referred to as an upstream storage subsystem) that is located on a nearer side of the storage subsystem in question seen from the host computer and connected to the storage subsystem in question;

an outgoing status information storage unit which stores said status information (hereinafter, referred to outgoing status information) to be sent to said upstream storage subsystem;

a concatenation position judgment unit which judges a concatenation position of the storage subsystem in question based on information stored in said status information acquisition command received from said upstream storage subsystem; and

a status information acquisition unit:

that acquires the status information of the storage subsystem in question at status information acquisition time intervals stored in the status information acquisition command, to store the acquired status information into the outgoing status information storage unit, when said concatenation position judgment unit judges that the storage subsystem in question is a storage subsystem (hereinafter, referred to as an end storage subsystem) located at a farthest position in concatenation order seen from the host computer; and

that acquires the status information of the storage subsystem in question at time of receiving status information from a storage subsystem (hereinafter, referred to as a downstream storage subsystem) connected to and located on a farther side of the storage subsystem in question seen from the host computer, and adds the status information of the storage subsystem in question to the received status information of said downstream storage subsystem, to store resultant status information to the status information storage unit; and

when the concatenation position judgment unit judges that the storage subsystem in question is not a storage subsystem (hereinafter, referred to as a direct-coupled storage subsystem) connected directly to the host computer, then, said interface sends all of said status information stored in the status information storage unit to said upstream storage subsystem.

7. A computer system in which a plurality of storage subsystems according to Claim 1 are sequentially concatenated to a host computer and remote copy is performed between said

plurality of storage subsystem, wherein:

said host computer comprises:

a status information acquisition command generation unit which generates said status information acquisition command;

a status information acquisition unit which receives status information from said plurality of storage subsystems;

a status information holding unit which holds the status information acquired by said status information acquisition unit; and

a remote copy adjustment unit which generates information for adjusting remote copy according to said status information held in said status information holding unit.

8. A status information acquisition method for acquiring status information of a plurality of storage subsystems (hereinafter, referred to remote storage subsystems) in a computer system in which said remote storage subsystems are concatenated sequentially to a storage subsystem directly coupled to a host computer, said status information acquisition method comprising:

receiving a status information acquisition command from a storage subsystem (hereinafter, referred to as an upstream storage subsystem) that is connected to a storage subsystem (hereinafter, referred to a storage subsystem in question), and is located on a nearer side of the storage subsystem in question seen from the host computer;

judging whether the storage subsystem in question stored in said status information acquisition command is a target storage

subsystem (meaning a storage subsystem from which status information is to be acquired) by analyzing the received status information acquisition command; and

when it is judged that the storage subsystem in question is the target storage subsystem, then, the storage subsystem in question acquires the status information of the storage subsystem in question itself and sends the acquired status information to said upstream storage subsystem; and

when it is judged that the storage subsystem in question is not the target storage subsystem, then, the storage subsystem in question sends the received status information acquisition command to a storage subsystem (hereinafter, referred to as a downstream storage subsystem) connected to and located on a farther side of the storage subsystem in question seen from the host computer, and thereafter, when status information of said downstream storage subsystem is received from the downstream storage subsystem, the storage subsystem in question sends the received status information to the upstream storage subsystem.

9. A status information acquisition method for acquiring status information of a plurality of storage subsystems (hereinafter, referred to remote storage subsystems) in a computer system in which said remote storage subsystems are sequentially concatenated in a sequence, said status information acquisition method comprising:

receiving a status information acquisition command from a storage subsystem (hereinafter, referred to as an upstream storage subsystem) that is connected to a storage subsystem

(hereinafter, referred to as a storage subsystem in question) and is located on a nearer side of the storage subsystem in question seen from the host computer;

judging whether the storage subsystem in question is a storage subsystem (hereinafter, referred to as an end storage subsystem) concatenated at a farthest position in said sequence seen from the host computer by analyzing the received status information acquisition command;

when it is judged that the storage subsystem in question is the end storage subsystem, then, the storage subsystem in question acquires the status information of the storage subsystem in question itself and sends the acquired status information to said upstream storage subsystem connected to the storage subsystem in question; and

when it is judged that the storage subsystem in question is not the end storage subsystem, then, the storage subsystem in question sends the received status information acquisition command to a storage subsystem (hereinafter, referred to as a downstream storage subsystem) connected to and located on a farther side of the storage subsystem in question seen from the host computer, and thereafter, when status information is received from said downstream storage subsystem, the storage subsystem in question adds the status information of the storage subsystem in question to the status information received from the downstream storage subsystem to obtain new status information, and sends the new status information to the upstream storage subsystem.

10. A status information monitoring method for monitoring remote copy status of a plurality of storage subsystem (hereinafter, referred to remote storage subsystems) in a computer system in which said remote storage subsystems are sequentially concatenated in sequences to storage subsystems (hereinafter, referred to as direct-coupled storage subsystems) directly coupled to a host computer, said status information monitoring method comprising:

generating a status acquisition command for acquiring, at regular time intervals, remote copy status information of all the storage subsystems constituting a specific sequence connected to the host computer, in said host computer;

sending the generated status acquisition command to a direct-coupled storage subsystem;

receiving the sent status acquisition command in said direct-coupled storage subsystem;

when the received status acquisition command is a command for acquiring the status information of the sequence to which the direct-coupled storage subsystem in question belongs, the status acquisition command is sent to a downstream remote storage subsystem connected to the direct-coupled storage subsystem in question;

sending the received command at said remote storage subsystem, up to a remote storage subsystem connected at an end farthest from the host computer in the sequence,;

acquiring said status information to be sent to an upstream storage subsystem connected to the remote storage subsystem in question itself, at said remote storage subsystem

connected at the end according to the received status acquisition command;

judging whether the storage subsystem in question is a remote storage subsystem or a direct-coupled storage subsystem at said storage subsystem which acquires said status information; and

at said storage subsystem received said status information,

when it is judged that the storage subsystem in question is a remote storage subsystem, then, repeating,

adding the status information of the storage subsystem in question to the status information received from a downstream remote storage subsystem connected to the storage subsystem in question, and sending resultant status information to an upstream storage subsystem connected to the storage subsystem in question,

until said upstream storage subsystem becomes a direct-coupled storage subsystem and the direct-coupled storage subsystem holds the status information, and

when it is judged that the storage subsystem in question is a direct-coupled storage subsystem, then, holding the acquired status information;

generating a status information acquisition command for acquiring remote copy status information (held by a direct-coupled storage subsystem) of all the storage subsystems constituting a specific sequence connected to the host computer at the host computer;

sending the generated status information acquisition command to said direct-coupled storage subsystem;

receiving the sent status information acquisition command, and sending the status information acquired and held by the direct-coupled storage subsystem in question to the host computer when a sequence designated by said command as a sequence from which status information is to be acquired is a sequence to which the direct-coupled storage subsystem in question belongs); and

receiving to be held the sent status information in the host computer.

11. A storage subsystem (hereinafter, referred to as the storage subsystem in question) in a computer system in which a plurality of storage subsystems are sequentially concatenated to a host computer and remote copy is performed between said plurality of storage subsystems, wherein:

said storage subsystem in question comprises an arithmetic unit and a memory; and

said arithmetic unit performs:

processing of receiving a status information acquisition command from a storage subsystem (hereinafter, referred to as an upstream storage subsystem) that is located on a nearer side of the storage subsystem in question seen from the host computer and connected to the storage subsystem in question;

processing of judging whether a target storage subsystem (meaning a storage subsystem from which said status information is to be acquired) specified in said status information acquisition command is the storage subsystem in question;

processing of sending said status information acquisition command to a storage subsystem (hereinafter, referred to as a

downstream storage subsystem) that is located on a farther side of the storage subsystem in question seen from the host computer and connected to the storage subsystem in question, when it is judged that the storage subsystem in question is not said target storage subsystem from which said status information is to be acquired; and processing of acquiring status information of the storage subsystem in question itself and storing the acquired status information as status information (hereinafter, referred to as outgoing status information) to be sent into said memory, when it is judged that the storage subsystem in question is the target storage subsystem from which said status information is to be acquired;

processing of receiving the status information from the downstream storage subsystem and storing the received status information as the outgoing status information into said memory; and

processing of sending the status information stored in said memory to said upstream storage subsystem.

12. A computer system in which a plurality of storage subsystem according to Claim 6 are sequentially concatenated to a host computer and remote copy is performed between said plurality of storage subsystems, wherein:

said host computer comprises:

a status information acquisition command generation unit which generates said status information acquisition command;

a status information acquisition unit which receives status information from said plurality of storage subsystems;

a status information holding unit which holds the status information acquired by said status information acquisition unit; and

a remote copy adjustment unit which generates information for adjusting remote copy according to said status information held in said status information holding unit.